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(71)Applicant : MATSUSHITA ELECTRIC IND CO LTD

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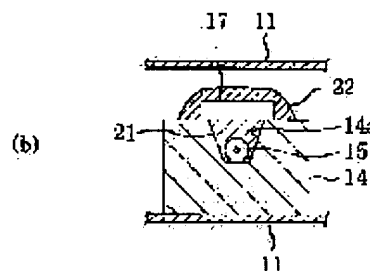
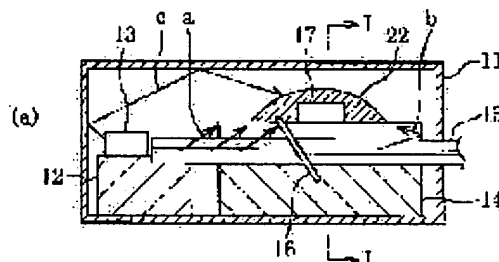
(72)Inventor : MITSUTA MASAHIRO  
NISHIKAWA TORU  
UNO TOMOAKI

## (54) BIDIRECTIONAL OPTICAL SEMICONDUCTOR DEVICE

(57)Abstract:

**PROBLEM TO BE SOLVED:** To improve an optical isolation and also to minimize a bidirectional optical semiconductor device as a whole which is constituted by integrating a substrate having an optical waveguide, a semiconductor light emitting element, an optical branch unit, and a semiconductor light receiving element.

**SOLUTION:** On the top surface of a silicon substrate 12, a semiconductor laser element 13 is fixed and in the groove part 14a of a glass substrate 14, an optical fiber is embedded. An optical branch unit 16 which has a specific angle to its optical axis is inserted into the glass substrate 14 and the optical branch 16 passes output signal light emitted by the semiconductor laser element 13 and guides input signal light inputted to the optical fiber 15 to the opposite side of the glass substrate 14. On the top surface of the glass substrate 14, a light receiving element 17 receive the input signal light guided by the optical branch unit 16 is fixed. The reverse surface of the light receiving element 17 except its light reception part, the flank on the laser element side, the flank on the opposite side from the laser side, and the top surface are coated with light-shielding resin 22 and the light which is emitted by the semiconductor laser element 13 and travels to the light receiving element 17 is cut off by the light-shielding resin 22.



## LEGAL STATUS

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